**Form 504**

**U. S. COAST AND GEODETIC SURVEY**
DEPARTMENT OF COMMERCE

**DESCRIPTIVE REPORT**

<table>
<thead>
<tr>
<th>Type of Survey</th>
<th>HYDROGRAPHIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field No.</td>
<td>GI-05-2-60</td>
</tr>
<tr>
<td>Office No.</td>
<td>H-8565</td>
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**LOCALITY**

<table>
<thead>
<tr>
<th>State</th>
<th>NORTH CAROLINA</th>
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<tbody>
<tr>
<td>General locality</td>
<td>EAST COAST NORTH CAROLINA</td>
</tr>
<tr>
<td>Locality</td>
<td>BEAUFORT INLET</td>
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</tbody>
</table>

**1960**

CHIEF OF PARTY
Kenneth A. MacDonald, LT.

**LIBRARY & ARCHIVES**

DATE, 4 FEB 15 1961
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. H-8565
Field No. GI-05-2-60

State     North Carolina
General locality Atlantic Ocean
Locality     Beaufort Inlet
Scale     1:5,000     Date of survey Nov. and Dec. 1960
Instructions dated 6 September, 1960; 222/MEK, S-2-GI
Vessel     Launch CS-1176 and Catamaran Skiff.
Chief of party Kenneth A. MacDonald
Surveyed by Doyle D. Harper
Soundings taken by fathometer, graphic recorder, hand lead, wire
Fathograms scaled by Personnel - Ship GILBERT
Fathograms checked by Personnel - Ship GILBERT
Protracted by Richard D. Lynn
Soundings penciled by Richard D. Lynn
Soundings in fathoms feet at MLW

REMARKS:
NOTES TO ACCOMPANY

DESCRIPTIVE REPORT

HYDROGRAPHIC SURVEY H-8565  FIELD NO. GI-05-2-60

BEAUFORT INLET, N. CAROLINA

1960 FIELD SEASON  Scale 1:5,000

USCG&GS SHIP GILBERT
LT. Kenneth A. MacDonald, Comdg.

Surveyed by: Doyle D. Harper

A. PROJECT:


B. SURVEY LIMITS AND DATES:

The survey covers the Beaufort Inlet area, between longitudes 76°39'00" and 76°43'00", and from latitude 34°39'30" north to the low water line of Bird Shoal, at approximate latitude 34°42'00".

The survey covers a portion of the area covered by survey H-7963, scale 1:12,500, 1953, and a junction was made with contemporary survey H-8564 on the west.

Field work began 9 November 1960, and ended 8 December 1960. Field work was slowed by prevailing southerly winds which caused breakers on the shoal areas.

C. VESSEL AND EQUIPMENT:

Most of the hydrography was done with launch CS-1176 operating from the Ship GILBERT in Beaufort. At sounding speed of 4½ knots, the launch has a turning radius of about 30 meters. An 808 type fathometer was used throughout. #162 SPX was used for all sounding except for a portion of "1" day when #159 SPX was used. Fathometers were calibrated for 820 fathoms/second.

For a portion of the work north of Shackleford Point a catamaran skiff arrangement was used, consisting of two 16 ft. aluminum skiffs secured together. A sounding pole was used for the skiff work.

(1)
C. VESSELS AND EQUIPMENT (CONTINUED)

A leadline was used for drift sounding on shoals, and for vertical casts at bar checks. The leadline was measured and the results recorded in the sounding record.

Some areas were surveyed by walking the water line at low tide and taking sextant fixes.

D. TIDE AND CURRENT STATIONS:

The standard gage at Morehead City was leveled, and inspected for satisfactory operation before the survey began.

A portable gage, already installed by the U. S. Engineers on Triple ESS fishing pier, Atlantic Beach was maintained by ship personnel during the survey. All tide reducers are from this gage, with no time or height corrections applied.

All bench marks in the vicinity of the Atlantic Beach gage, had been destroyed, necessitating the setting of new marks, and establishing a datum from only 10 days observations. See letter from Acting Chief, Marine Data Division, 2221-461-982 GI, 28 October 1960.

Six current stations were observed, using Roberts Radio Meters, in accordance with instructions previously mentioned. Considerable difficulty was experienced at Station 1 and 2 in the outside channel due to extended periods of very rough water which made it impossible to go alongside the buoys to repair equipment. In addition, current directions obtained were poor, several of the meters had compass contacts installed 180° out of phase, these directions were reversed in the record books and noted with an (R). After completion of the stations, these meters were repaired by setting the meter in a due N direction, and adjusting the contacts.

At the request of the Washington Office, stations 1 and 2 were re-observed with much better results.

In most cases, the buoys in the Ship Channel had to be set to one side or the other, so as not to interfere with dredging operations of the dredge GERIG. For the first observations at Station #1 the buoy was set very near the edge of the channel, and the bottom came up very steep just outside the buoy. From the condition of the bottom meter upon retrieving the gear, it is suspected that the meter was dragging along the bank on the reversal of the current. This would explain the poor results obtained on the meter.

Free floats were released at four locations during peak currents as prescribed in the instructions. These floats consisted of a cross, (4), made of two pieces of 1"x4" lumber, 3 ft. in length, with a 1 foot long 2"x2" piece nailed in an upright position, providing very little wind resistance. The floats were numbered to avoid confusion in identification.
D. TIDE & CURRENT STATIONS (CONTINUED):

The floats were released approximately 100 yards apart at right angles to the current. Three point sextant fixes were taken from a skiff at each float as fast as the skiff could run between the floats. The paths of the floats were plotted on a copy of Chart 423 and forwarded to the Washington Office.

E. SMOOTH SHEET:

The smooth sheet projection was made in the Washington Office by ruling machine. Shoreline and signals were transferred from topographic sheets T-7138 and T-7139, and verified in accordance with Section 757, Hydrographic Manual.

The smooth sheet was plotted as field work progressed.

F. CONTROL STATIONS: See NPS signal list

Control Stations used on the survey are as follows:

Triangulation Stations:
*BACK RANGE LT, RANGE "B" (USE), supplied by USE, Wilmington, N. C.
GAR, F.L.P. 1921, r. C.R.R. 1952
FORT MACON COAST GUARD CUPOLA, H.O. 1933, r. R.J.S. 1949
FORT MACON C. G. STATION 191, CUPOLA, C.R.R. 1952
MOREHEAD CITY RADIO STATION WMBL, TOWER, R.J.S. 1948
BEAUFORT COURTHOUSE CUPOLA, J.B.B. 1913, r. C.R.R. 1952
BEAUFORT MUNICIPAL WATER TANK, F.L.P. 1927, r. R.J.S. 1946
TOWN MARSH 2, F.L.P. 1927, r. R.J.S. 1947
JETTY (USE SHACKLEFORD), H.O. 1933, r. C.R.R. 1952

G. SHORELINE AND TOPOGRAPHY:

Shoreline and topography are from T-7138 and T-7139, no shoreline revisions were made by the Hydrographic party.

The low water line was not completely delineated in all places because of small tide range and exposed beaches.

*The position of BACK RANGE LT, RANGE "B" (USE), was verified by plane table on Sheet T-7139

TOPOGRAPHIC STATIONS:

BOB
CAR
DIM
ELM
END
FRO
FUN
GAL

All topo stations are from T-7139, except END, which is a three point theodolite fix.
G. SHORELINE AND TOPOGRAPHY (CONTINUED):

A new fixed aid to navigation, established during the survey, MOREHEAD CITY CHANNEL RANGE, FRONT LT., was located by sextant fixes and plotted on the smooth sheet. BEAUFORT INLET CHANNEL RANGE, REAR LT., was also located and plotted in the same manner.

Fixes taken to locate current buoys indicated the position of, Radio Tower (WBMA), a charted landmark to be in error. Sextant cuts from other stations were obtained to the tower and plotted on the smooth sheet. The new position is reported on Form 567. See Appendix.

Sextant fixes were taken from inside the cupola, at FORT MACON C. G. STATION 191, CUPOLA, 1952, to verify the charted position, in accordance with Deputy Director's letter S-1-GI, 211/mmy, 3 November 1960. The charted position was verified. A chart of objects for use of United States Coast Guard was prepared and submitted.

H. SOUNDINGS:

Depths were measured by 808 type fathometers, sounding pole, and standard lead line.

Velocity corrections were computed from bar checks taken daily, weather permitting. These corrections had to be computed from individual bar checks in order to keep the records up to date for the smooth plotter. An abstract of velocity corrections is attached to this report.

The initial setting was maintained at 1 foot throughout. R.P.M. checks were made daily on the fathometer, and reed tachometers were checked frequently to insure operation at the proper speed. All fathometer sounding was done on the "A" scale.

The U. S. Engineers suction dredge GERIG was dredging in the main Ship Channel during the survey. This accounts for some erroneous depth curves in the NW corner of the sheet. After the dredge began work, no more attempt was made to develop the channel except for the regular spacing of lines.

Predicted tides varied greatly from actual tides, this caused some poor crossings on the boat sheet.

I. CONTROL OF HYDROGRAPHY:

All hydrography was controlled by three point sextant fixes, except in some instances where fixes were referred to topographic objects along the beach. The location of the submarine telephone cable from Fort Macon Coast Guard Station to Shackleford Point was obtained from a work plan at the Coast Guard Station.
J. ADEQUACY OF SURVEY:

The survey is considered complete and adequate to supersede prior surveys for charting purposes. Adequate junction is made with contemporary survey H-8564.

K. CROSSLINES:

About 8% of the sounding lines are crosslines, good crossings were obtained.

L. & M. COMPARISON WITH PRIOR SURVEYS AND CHART:

See smooth plotters notes.

N. DANGERS AND SHOALS:

No new dangers or shoals were found. All least depths on the shoal area just west of Beaufort Channel were found to be greater than charted. The new survey is considered adequate in this respect to supersede prior surveys, and the charted soundings need not be retained.

This being a very changeable area, the entire bar on both sides of the channel has shifted and changed shape. It is assumed that an exhaustive discussion of each change here would only be confusing. See comparison with chart and prior surveys.

O. COAST PILOT INFORMATION:

No changes in or additions to the 6th (1959) edition of the Coast Pilot, are necessary.

P. AIDS TO NAVIGATION:

Fixed aids to navigation have been reported on Form 567.

Floating aids are listed separately.

Shortly after the survey was completed, the Coast Guard re-established buoys in the survey area. See Notice to Mariners, No. 60, 12-22-60, Fifth Coast Guard District, attached to boat sheet.

Azimuths of ranges were determined as follows:

Beaufort Inlet Channel Range 009°
Morehead City Channel Range 127½°

These azimuths were scaled from the plotted positions of the front and rear lights on each range, from the smooth sheet.

The termini of the submarine telephone cable from Fort Macon Coast Guard Station to Shackleford Point are:
P. AIDS TO NAVIGATION: (CONTINUED)

Lat. 34°41'55", Long. 76°40'43", and Lat. 34°41'33", Long. 76°39'43", as determined from a work chart at the Coast Guard Station.

Q. LANDMARKS FOR CHARTS:

Landmarks for charts have been reported on Form 567. Landmarks newly located and recommended for charting are:

RADIO TOWER (WBMA)
BEAUFORT INLET CHANNEL RANGE, FRONT LT.
MOREHEAD CITY CHANNEL RANGE, FRONT LT.
BEAUFORT INLET CHANNEL RANGE, REAR LT.

Landmarks to be deleted from the chart were:

CUPOLA (on Atlantic Beach), destroyed.
RADIO TOWER (WBMA), position in error.
FLAGPOLE, (in Beaufort), destroyed.
Z. Tabulation of Applicable Data:

1. Sounding Volumes (8 volumes)
2. Pathograms "a" through "n" days
3. Boat Sheet H-8565
4. Smooth Sheet H-8565
5. Level Records, Tide Station reports, and Description of Bench Marks, Morehead City and Atlantic Beach gages
6. Free Float Records
8. Current Survey Data
9. Tide Reducers
10. Velocity Correction Report
11. Landmarks for Charts, Form 567
12. Topographic Sheets T-7138 and T-7139

Date Forwarded
To be forwarded
""
"

Forwarded 13 Oct. and 23 Dec. 1960
To be forwarded
""

Submitted by:

Doyle D. Harper
LTJG, C&GS

Approved and Forwarded:

Kenneth A. MacDonald
LT, C&GS, Comdg.
Ship GILBERT
NORFOLK PROCESSING OFFICE
LIST OF SIGNALS
To Accompany
H-8565

TRIANGULATION STATIONS

BEA  BEAUFORT COURT HOUSE CUPOLA, 1913-27
CUP  FORT MAGON COAST GUARD STATION NO. 191, CUPOLA, 1952
GAR  GAR, 1927
JET  JETTY (USE SHACKLEFORD), 1933
MAR  TOWN MARSH 2, 1927-34
RAN  SHACKLEFORD REAR RANGE BEACON, USE
TAN  BEAUFORT MUNICIPAL WATERTANK, 1927-43
WMBL  MOREHEAD CITY WMBL RADIO TOWER, 1948

TOPOGRAPHIC STATIONS  SOURCE T-7139

Aha  Bob  Car  Dim  Elm  End  Fro  Fun  Gal  Sam

HYDROGRAPHIC STATIONS  SOURCE H-8564

Nub  Ora
<table>
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<tr>
<th>BUOY</th>
<th>LATITUDE</th>
<th>LONGITUDE</th>
<th>DEPTH</th>
<th>POS.</th>
<th>DATE</th>
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<tr>
<td>Lighted Buoy 3</td>
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<td>44n</td>
<td>12/6/60</td>
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<td>39°33'</td>
<td>40°21'</td>
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<td>Buoy 5</td>
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<td>40°13'</td>
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<td>Lighted Buoy 11</td>
<td>41°17'</td>
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<td>22'</td>
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<td>33'</td>
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<td>Buoy 14</td>
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<td>BEAUFORT HARBOR CHAN.</td>
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<tr>
<td>Entr. L'td. Buoy 1</td>
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### STATISTICS

For Hydrographic Survey H-8565, 1960

**Launch 1176**

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<tr>
<th>Date</th>
<th>Vol.</th>
<th>Day Letter</th>
<th>No. of Positions</th>
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<td>159</td>
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<td>15 November</td>
<td>2</td>
<td>c</td>
<td>123</td>
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<td>16 November</td>
<td>2</td>
<td>d</td>
<td>65</td>
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<tr>
<td>16 November</td>
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<td>18 November</td>
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<td>e</td>
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<td>4</td>
<td>f</td>
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<td>21 November</td>
<td>5</td>
<td>f</td>
<td>16</td>
<td>2.5</td>
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<tr>
<td>22 November</td>
<td>5</td>
<td>g</td>
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<td>25 November</td>
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<td>h</td>
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<td>2 December</td>
<td>6</td>
<td>l</td>
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<td>3 December</td>
<td>7</td>
<td>m</td>
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<td>6 December</td>
<td>7</td>
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**Totals...........**  
1762  
151.7
# STATISTICS

For Hydrographic Survey H-3565, 1960

**Catamaran Skiff**

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<th>Date</th>
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<td>94</td>
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<td>6(Launch)</td>
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<td>30 November</td>
<td>1(Skiff)</td>
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<td>61</td>
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<td><strong>Totals.......</strong></td>
<td><strong>237</strong></td>
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<td><strong>8.1</strong></td>
</tr>
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TIDE NOTE
HYDROGRAPHIC SURVEY H-8565, 1960

All tide reducers were computed from marigrams from a portable
tide gage maintained by Triple ESS fishing pier at Atlantic Beach,
Latitude 34° 41' 40", Longitude 76° 42' 41". No time or height
corrections were applied.

Mean low water corresponds to 1.9 feet on the tide staff. This
datum was computed from a short period of observations. See letter
from Acting Chief, Marine Data Division, 2221-L61 982 gi, 28 October 1960.
### ABSTRACT OF

**VELOCITY CORRECTIONS**

**HYDROGRAPHIC SURVEY H-8565, 1960**

**BEAUFORT INLET, NORTH CAROLINA**

<table>
<thead>
<tr>
<th>Correction</th>
<th>a &amp; b days</th>
<th>c &amp; d days</th>
<th>e day</th>
<th>f day</th>
<th>g, h days</th>
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<tr>
<td>+0.2</td>
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</tr>
<tr>
<td>0.0</td>
<td>0' - 12'</td>
<td>0' - 20'</td>
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<td>0' - 5'</td>
<td>0' - 3'</td>
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<tr>
<td>-0.2</td>
<td>12' - 20'</td>
<td>20' -</td>
<td>0' - 15'</td>
<td>5' - 15'</td>
<td>3' - 6'</td>
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<tr>
<td>-0.4</td>
<td>20' - 30'</td>
<td>15' - 25'</td>
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<td>6' - 20'</td>
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</tbody>
</table>

Figures in day columns are depths in feet.
Corrections are in feet.
GENERAL

The smooth plot of this survey was started by Mr. R.D. Lynn while on detached duty with Ship Gilbert. When the field work was completed he returned to this Office and finished the plot.

Except for minor discrepancies in depths in the Morehead City Channel, where dredging and sounding operations were going on at the same time, soundings are in good agreement at crossings.

A comparison with chart 423 shows extensive changes in shoreline, shoals, deeps, and depth curves. These changes have been delineated on a chart section which is being forwarded with the smooth sheet.

CURRENT STATIONS

Current stations were not plotted on the smooth sheet as the positions locating them were forwarded to Washington Office under separate cover.

LAND MARKS

It will be noted that radio tower WEMA was plotted with only two sextant cuts, one of which was observed with a comparatively short azimuth.

CONTROL

See paragraph "F" of the hydrographic descriptive report for survey H-8565 (G1-05-1-60), concerning the relocation of some topographic stations on T-7138 with sextant angles.

Did field party fail to get positions on ranges?

Norfolk, Va.
9 Feb. 1960

Respectfully submitted,

Hugh L. Proffitt
Cartographer
<table>
<thead>
<tr>
<th>Name on Survey</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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<td>Beaufort Inlet</td>
<td>✓</td>
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</table>

6

George W. Bann
Geographic Names Officer
12 March '61
TIDE NOTE FOR HYDROGRAPHIC SHEET

12 May 1961

Division of Charts: R.H. Carstens

Plane of reference approved in 8 volumes of sounding records for

HYDROGRAPHIC SHEET 8565

Locality Beaufort Inlet, North Carolina

Chief of Party: K.A. Mac Donald (1960)
Plane of reference is mean low water, reading
1.9 ft. on tide staff at Atlantic Beach, N.C.
13.9 ft. below B. M. 4 (1960)

Height of mean high water above plane of reference is: 3.7 ft.

Condition of records satisfactory except as noted below:

Witnessed

Chief, Tides and Currents Branch

U.S. GOVERNMENT PRINTING OFFICE 277533
Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8565...

Records accompanying survey: Smooth sheets ...1...
boat sheets ...1...; sounding vols. ...8...; wire drag vols. ......
Descriptive Reports ...1...; graphic recorder envelopes ...6...
special reports, etc. ...Cahier - Position data, etc...

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet ......
Number of positions checked ......
Number of positions revised ......
Number of soundings revised (refers to depth only) ......
Number of soundings erroneously spaced ......
Number of signals erroneously plotted or transferred ......
Topographic details Time ......
Junctions Time ......
Verification of soundings from graphic record Time ......
Special adjustments Time ......

Verification by .................. Total time ...... Date ........

Reviewed by .......................... Time ...... Date ........
The verifier should deal with the present hydrographic survey only, as the reviewer considers its relation to previous surveys and published charts. He should be thoroughly familiar with Chapters 3, 7 and 9 of the Hydrographic Manual.

1. The descriptive report was consulted and appropriate notes were made in soft pencil regarding action taken.

2. Soundings originating with the survey and mentioned in the descriptive report have been verified, including latitude and longitude.

3. All reference to survey sheets mentioned in the descriptive report include the registry number and year.

4. Geographic names of hydrographic features if on sheet are in slanting lettering and of topographic features in vertical lettering.

5. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken.

6. All positions verified instrumentally were check marked in the sounding records.

7. All critical soundings are clear and legible and are a little larger than the adjacent soundings.

8. The metal protractor has been checked within the last three months.

9. The protracting and plotting of all bad crossings were verified.

10. All detached positions locating critical soundings, rocks or buoys were verified.

11. The boat sheet was compared with the smooth sheet.
12. The spacing of soundings as recorded in the records was closely followed.

13. The bottom characteristics were shown on outstanding shoals.

14. The reduction and plotting of doubtful soundings were checked.

15. The transfer of contemporary topographic information was carefully examined.

16. All junctions were transferred and overlapping curves made identical.

17. The notation "JOINS H- (19--)" was added in ink for all contemporary adjoining or overlapping sheets now registered. Those not verified are shown in pencil.

18. The depth curves have been inspected before inking.

19. All triangulation stations and transfer of topographic and hydrographic signals were checked.

20. Heights of rocks were checked against range of tide.

21. Rocks transferred from topographic surveys have a dotted curve where shown thereon. Rocks located accurately by hydrographer are encircled by dotted red curve.

22. Unnecessary pencil notes have been removed.

23. Objects on which signals are located and which fall outside of the low water line have been described on the sheet.

24. The low water line and delineation of shoal areas have been properly shown.

25. Degree and minutes values and symbols have been checked.

26. Questionable soundings have been checked on the fathograms
27. Source of shoreline and signals (when not given in report).

28. All notes on sheet are in accordance with figure 171 in the Hydrographic Manual.

29. All aids located, with those on contemporary topographic sheets, have been shown on survey.

30. Depth curves were satisfactory except as follows:

31. Sounding line crossings were satisfactory except as follows:

32. Junctions with contemporary surveys were satisfactory except as follows:

33. Condition of sounding records was satisfactory except as follows:

34. The protracting was satisfactory except as follows:

35. The field plotting of soundings was satisfactory except as follows:

36. Notes to reviewer:

Verified by  Date
# NAUTICAL CHARTS BRANCH

**SURVEY NO. H-3565**

**Record of Application to Charts**

<table>
<thead>
<tr>
<th>DATE</th>
<th>CHART</th>
<th>CARTOGRAPHER</th>
<th>REMARKS</th>
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<tr>
<td>3/1/61</td>
<td>423</td>
<td>HE</td>
<td>Before Verification and Review</td>
</tr>
<tr>
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<td></td>
<td></td>
<td><em>Partially applied.</em></td>
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<td>8-21-61</td>
<td>420</td>
<td>J. L. Keller</td>
<td>Before Verification and Review thru ch. 423</td>
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<td>9-13-61</td>
<td>833</td>
<td>H. M. Quimby</td>
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<td>1234</td>
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<td>10-5-61</td>
<td>1233</td>
<td>D. Swenson</td>
<td>Part applied Before Verification and Review</td>
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<tr>
<td>11/12</td>
<td>1110</td>
<td>J. J. Sheffer</td>
<td>Before Verification and Review</td>
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<tr>
<td>9/10/63</td>
<td>833(A)</td>
<td>A. J. Hoffm.</td>
<td>Examined thru 420, no corrections</td>
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<td>11547</td>
<td>B. B. Whitey</td>
<td>FULL BEFORE VERIFICATION</td>
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<td>Review CHG # 145</td>
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A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.